

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

DESCRIPTION OF A NEW SPECIES OF TROUT (*SALMO
EVERMANNI*) FROM THE UPPER SANTA ANA RIVER,
MOUNT SAN GORGONIO, SOUTHERN CALIFORNIA.

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Salmo evermanni Jordan & Grinnell, sp. nov.

Type.—Male, No. 20,389, Stanford University; collected by Joseph Grinnell, August 17, 1907, in the headwaters of the South Fork of the Santa Ana River, at 8,200 feet altitude, four miles northwest of San Geronio Peak, the highest mountain in southern California. Cotypes in the U. S. National Museum and the U. S. Bureau of Fisheries from the same locality.

Description of type.—Length of type, an adult male (as measured when first caught), $11\frac{5}{8}$ inches (296 millimeters); head measured along side $2\frac{3}{4}$ inches (70 millimeters). Head $3\frac{5}{8}$ in length to base of caudal, the jaws being somewhat produced; depth of body $4\frac{2}{3}$; eye $6\frac{1}{2}$ in head; maxillary $1\frac{3}{4}$ in head; dorsal with 10 rays, anal with 10; 34 scales between base of dorsal and lateral line, 167 oblique rows crossing lateral line, and 33 scales between lateral line and vent. Snout (from eye) $3\frac{1}{3}$ in head; anal 2 in head; ventral $2\frac{1}{2}$ in head; pectoral $1\frac{3}{8}$ in head; dorsal $1\frac{1}{2}$ in head. Caudal distinctly emarginate, or lunate. Vomerine teeth in two straight rows; hyoid teeth present, though buried in mucus; maxillary extending well beyond eye, so that the mouth is relatively large. In the female, the head is shorter and the mouth a little smaller; the maxillary $1\frac{1}{2}$ in head. Coloration, very dark fawn-brown, the spots unusually large and covering the whole length of the body, none of the brilliant hues of *Salmo aqua-bonita*, *roosevelti* or *whitei*, nor even the crimson of *irideus*. Ground fawn-color along sides, varying toward seal brown dorsally; a large patch of same color on cheek; lower parts lighter (fresh tints unknown, but no red in throat region shown in the specimens); black spotting conspicuous, the spots evenly distributed, very large, on sides posteriorly the size of pupil or larger, smaller on top of head; 25 spots on dorsal fin, mostly in four rows; caudal fin nearly as distinctly spotted as sides, with spots more closely set. Younger individuals are somewhat lighter, but yet consider-

ably darker than *irideus* of the same size, and the other characteristics seem to be constant.

Comparison.—As compared with *Salmo irideus* Gibbons, *Salmo evermanni* is slenderer, especially dorso-ventrally; the head is longer, the snout sharper, and mouth larger; the scales are very much smaller, and more numerous, not overlapping; the colors are dull and very dark, and the spotting is heavy.

Remarks.—On August 17, 1907, the junior author fished down the upper South Fork of the Santa Ana, starting well up in the Big Horse Meadows at about 8,300 feet altitude. A Cincinnati No. 24 double-gut bass hook was used with earthworms as bait. The stream is steep and rapid, there being but few pools with quiet margins. Most of the 30 trout obtained that day were obtained in these pools. Below the meadows a mile or so the canyon becomes extremely steep and narrow; and in this gorge at about 7,500 feet altitude is a series of water-falls, the highest estimated at 18 feet of sheer drop. Twenty-four of the thirty trout were secured above this point, and every one of these belonged to the new species. Five of them were preserved in formalin, changed in a few days to alcohol, and these include the type and cotypes of the present description. The junior author fished on down below the above-mentioned falls, and began to take the typical rainbow trout, *Salmo irideus*, common in all the lower streams of the region. Six of them were taken that day. During June, July and August, of 1907, 580 trout were caught in the main Santa Ana from Seven Oaks, 5,000 feet altitude, to Big Meadows, 6,700 feet, and in the tributary canyons of Fish Creek, Lost Creek and the lower South Fork. All of these were of the *irideus* type, which nothing prevents from ascending the main stream from the vicinity of Seven Oaks, which is now freshly stocked nearly every year. But very evidently none has been able to get up over the series of falls towards the head of the South Fork.

It seems to us, therefore, probable that *Salmo evermanni* is the older species in the region, and owes its preservation as a distinct species, and perhaps the accentuation of its characters, to isolation afforded by the barrier which prevents the invasion of *Salmo irideus* from the lower stream. In the remote history of the stream, the falls have doubtless shifted and become more effective, so that the ancestral stock of *Salmo evermanni* was originally able to ascend to its present remote and limited habitat.

This interesting species is named for Dr. Barton Warren Evermann in recognition of his varied and valuable investigations of the American *Salmonidæ*. The figure is by Mr. William S. Atkinson.